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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/544,742    04/07/00    KUPERMAN

A    44251

000109    IM52/0808  
THE DOW CHEMICAL COMPANY  
INTELLECTUAL PROPERTY SECTION  
P. O. BOX 1967  
MIDLAND MI 48641-1967

EXAMINER
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JOHNSON, E	
ART UNIT	PAPER NUMBER

1754  
DATE MAILED:

08/08/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

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# Office Action Summary

Application No.

09/544,742

Applicant(s)

KUPERMAN ET AL.

Examiner

Edward M. Johnson

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1754

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 34-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims 1-33, drawn to a process for making a catalyst, classified in class 502, subclass 344.

II. Claims 34-36, drawn to a process of oxidizing an olefin, classified in class 526, subclass 351.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and process of using the product. The use as claimed cannot be practiced with a materially different product. Since the product is not allowable, restriction is proper between said method of making and method of using. The product claim will be examined along with the elected invention (MPEP § 806.05(i)).

Because these inventions are distinct for the reasons given above, have acquired a separate status in the art as shown by their different classification, and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Marie F. Zuckerman on 8/1/01 a provisional election was made with traverse to

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prosecute the invention of Group I, claims 1-33. Affirmation of this election must be made by applicant in replying to this Office action. Claims 34-36 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Claim Objections***

2. Claim 23 is objected to because of the following informalities: "1" and "2" are used to refer to Groups in the Periodic Table. Examiner suggests replacing with --I-- and --II--. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 3-4, "the agent and/or the catalyst support comprise" appears unclear as to whether the limitations are listed in the alternative. Examiner suggests replacing with --the agent or the catalyst support comprises--.

Claim 24, "promoter metal(s)" appears unclear as to whether the limitations are listed in the alternative. Examiner suggests replacing with --promoter metals--.

Claims 2, 12, 14, 18-20, 23, and 25 appear to contain improper Markush groups. Examiner suggests using the language, --selected from the group consisting of--.

Claim 3, line 1, "the gold loading" lacks antecedent basis.

Claim 17, line 1, "the loading" lacks antecedent basis.

Claim 17, line 2, and claim 20, line 1, "the titanium loading" lacks antecedent basis.

Regarding claim 30, the term, "optional" renders the claim indefinite because it is unclear whether the limitation(s) following the term are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

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5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-9, 18, 20, 22-27, and 29-33 rejected under 35 U.S.C. 102(b) as being anticipated by Haruta et al. 5,051,394.

Regarding claim 1, Haruta '394 discloses a method for production of ultra-fine gold oxides comprising adding a gold compound with carboxylic acid (see column 3, lines 14-18) and a reducing agent (see column 1, lines 64-65), using a titanium oxide carrier (see column 8, lines 30-32).

Regarding claim 2, Haruta '394 discloses chloroauric acid, sodium chloroaurate, gold cyanide, potassium gold cyanide, and diethylamineauric acid trichloride (see column 4, lines 46-51).

Regarding claim 3, Haruta '394 discloses atomic ratio of Au/Ti = 1/19 (see column 9, lines 3-4).

Regarding claim 4, Haruta '394 discloses reduction with carboxylic acid (see column 6, lines 27-30).

Regarding claims 5-7, Haruta '394 discloses carboxylic acids and salts thereof (see column 5, lines 38-56).

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Regarding claim 8, Haruta '394 discloses at least 1 mol per mol (see column 5, lines 57-61).

Regarding claim 9, Haruta '394 discloses mixing citric acid solution with the coprecipitate (see column 8, lines 61-67).

Regarding claim 18, Haruta '394 discloses a titanium oxide carrier (see column 8, lines 30-32).

Regarding claim 20, Haruta '394 discloses 0.05 mol titanium sulfate (see Example 1), and atomic ratio of Au/Ti = 1/19 (see column 9, lines 3-4).

Regarding claims 22-23, Haruta '394 discloses adding an alkali compound to the metal salt (see abstract).

Regarding claim 24, Haruta '394 discloses 0.21 mol of sodium carbonate (see Example 1).

Regarding claim 25, Haruta '394 discloses dissolving in magnesium citrate solution (see Example 1).

Regarding claim 26, Haruta '394 discloses thorough washing (see column 9, line 1).

Regarding claim 27, Haruta '394 discloses 0.21 mol of sodium carbonate (see Example 1).

Regarding claim 29, Haruta '394 discloses 20-90 degrees Celsius (see column 6, lines 64-68).

Regarding claim 30-32, Haruta '394 discloses drying and firing in air at 400 degrees Celsius (see column 9, lines 1-2).

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Regarding claim 33, Haruta '394 discloses obtaining an Au-immobilized titania catalyst (see column 9, lines 3-4).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 10-14, 16-17, 19, 21, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haruta '394.

Regarding claims 10 and 21, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a titanium salt as reducing agent because Haruta '394 discloses using titanium both as salts in gold compounds and support material (see column 4, lines 52-58 and column 8, lines 30-32), and Haruta also discloses reducing agents comprising carboxylic acids and salts thereof, giving examples of various transition metals (see column 5, lines 38-56).



Regarding claims 11-14, Haruta '394 discloses using reducing agents comprising carboxylic acids and salts thereof (see column 4, lines 52-58).

Regarding claim 16, Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

Regarding claim 17, Haruta '394 discloses the ratio of  $Au/Ti = 1/19$  and 400 ml of 6.0 g/liter metal citrate solution (see Example 1).

Regarding claim 19, Haruta '394 discloses a titanium oxide carrier (see column 8, lines 30-32).

Regarding claim 28, it is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to conduct impregnation to the point of incipient wetness or less because Haruta '394 discloses impregnation with solution precipitation and also in view of Applicant's admission that such techniques are known in the art (Specification, page 7, first full paragraph).

9. Claims 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haruta '394 as applied to claim 1 above, and further in view of Hirose et al. 5,532,030.

Regarding claims 10-15, Hirose '030 discloses a hydrogenation product catalyst comprising a reducing agent or an acetylacetonate of a titan salt, (see column 26, lines 30-38).

Regarding claim 16, Haruta '394 discloses forming the gold/titania suspension before adding the reducing agent (see Example 1).

Regarding claim 17, Haruta '394 discloses the ratio of  $\text{Au/Ti} = 1/19$  and 400 ml of 6.0 g/liter metal citrate solution (see Example 1).

It is considered that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the titan acetylacetonate of Hirose as reducing agent in the catalyst composition of Haruta because Hirose discloses his acetylacetone for use in a catalyst (see column 26, line 31) with reducing agent (see column 26, line 35), and Haruta discloses reduction with various organometallic salts (see column 5, lines 38-56).

### **Conclusion**

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Haruta et al. 5,506,273 discloses a hydrogenation catalyst comprising metal oxide and gold; Iwakura et al. 5,502,020 discloses a catalyst for the production of ethylene oxide comprising silver, alkali,

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alkaline earth, and various transition metals; Geus 4,113,658 disclose a process for precipitation of metal compounds on support or carrier materials comprising gold and titania; and Moriya et al. 5,304,596 discloses a polyolefin catalyst comprising a titanium containing reducing agent.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward M. Johnson whose telephone number is 703-305-0216. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 703-308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3599 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

  
STEVEN P. GRIFFIN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700

EMJ  
August 3, 2001